



**[4910-13]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 25**

**[Docket No. FAA-2015-1940; Special Conditions No. 25-597-SC]**

**Special Conditions: Bombardier Aerospace Inc. Model BD-500-1A10 and BD-500-1A11 Airplanes; Flight-Envelope Protection, High Incidence Protection Function**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final special conditions, request for comment.

**SUMMARY:** These special conditions are issued for the Bombardier Aerospace Inc. Model BD-500-1A10 and -1A11 airplanes. These airplanes will have a novel or unusual design feature when compared to the state of technology and design envisioned in the airworthiness standards for transport-category airplanes. This design feature is a high incidence protection system that limits the angle of attack at which the airplane can be flown during normal low-speed operation. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

**DATES:** This action is effective on Bombardier Aerospace Inc. on **[Insert date of publication in the Federal Register]**. We must receive your comments by **[Insert date 45 days after date of publication in the Federal Register]**.

**ADDRESSES:** Send comments identified by docket number FAA-2015-1940 using any of the following methods:

- *Federal eRegulations Portal:* Go to <http://www.regulations.gov/> and follow the online instructions for sending your comments electronically.
- *Mail:* Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE., Room W12-140, West Building Ground Floor, Washington, DC, 20590-0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations at 202-493-2251.

*Privacy:* The FAA will post all comments it receives, without change, to <http://www.regulations.gov/>, including any personal information the commenter provides. Using the search function of the docket Web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the **Federal Register** published on April 11, 2000 (65 FR 19477-19478), as well as at <http://DocketsInfo.dot.gov/>.

*Docket:* Background documents or comments received may be read at <http://www.regulations.gov/> at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

**FOR FURTHER INFORMATION CONTACT:** Joe Jacobsen, FAA, Airplane and Flight Crew Interface Branch, ANM-111,Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98057-3356; telephone (425) 227-2011; facsimile (425) 227-1149.

**SUPPLEMENTARY INFORMATION:**

The FAA has determined that notice of, and opportunity for prior public comment on, these special conditions is impracticable because these procedures would significantly delay issuance of the design approval and thus delivery of the affected airplanes.

In addition, the substance of these special conditions has been subject to the public-comment process in several prior instances with no substantive comments received. The FAA therefore finds that good cause exists for making these special conditions effective upon publication in the **Federal Register**.

**Comments Invited**

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data.

We will consider all comments we receive by the closing date for comments. We may change these special conditions based on the comments we receive.

**Background**

On December 10, 2009, Bombardier Aerospace Inc. applied for a type certificate for their new Model BD-500-1A10 and -1A11 airplanes. The Model BD-500-1A10 and -1A11 airplanes are swept-wing monoplanes with a pressurized cabin, and share an identical supplier base and significant common design elements. The fuselage is aluminum alloy material, blended double-

bubble fuselage, and is sized for nominal five-abreast seating. The powerplant for each airplane model includes two under-wing Pratt and Whitney PW1524G ultra-high bypass, geared turbofan engines. Flight controls are fly-by-wire with two passive/uncoupled side sticks. Avionics include five landscape primary flightdeck displays. The wingspans are 115 feet; heights are 37.75 feet; and length is 114.75 feet for the Model BD-500-1A10, and 127 feet for the Model BD-500-1A11. Passenger capacity is 110 for the Model BD-500-1A10, and 125 for the Model BD-500-1A11. Maximum takeoff weight is 131,000 pounds for the Model BD-500-1A10, and 144,000 pounds for the Model BD-500-1A11. Maximum takeoff thrust is 21,000 pounds for the Model BD-500-1A10, and 23,300 pounds for the Model BD-500-1A11. Range is 3,394 miles, and operating altitude is 41,000 feet, for both airplane models.

Sections specified in these special conditions that address the high incidence protection system will replace common sections found in the applicable sections of Title 14, Code of Federal Regulations (14 CFR) part 25.

### **Type Certification Basis**

Under the provisions of 14 CFR 21.17, Bombardier Aerospace Inc. must show that the Model BD-500-1A10 and -1A11 airplanes meet the applicable provisions of part 25 as amended by Amendments 25-1 through 25-129.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Model BD-500-1A10 and -1A11 airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates

the same or similar novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Model BD-500-1A10 and -1A11 airplanes must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part 34, and the noise-certification requirements of 14 CFR part 36; and the FAA must issue a finding of regulatory adequacy under § 611 of Public Law 92-574, the “Noise Control Act of 1972.”

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.17(a)(2).

### **Novel or Unusual Design Features**

The Model BD-500-1A10 and -1A11 airplanes will incorporate the following novel or unusual design feature:

A high incidence protection system that replaces the stall warning system during normal operating conditions, prohibits the airplane from stalling, limits the angle of attack at which the airplane can be flown during normal low speed operation, and that cannot be overridden by the flightcrew. The application of this angle-of-attack limit impacts the stall-speed determination, the stall-characteristics and stall-warning demonstration, and the longitudinal-handling characteristics. The current regulations do not address this type of protection feature.

### **Discussion**

The high incidence protection function prevents the airplane from stalling at low speeds and, therefore, a stall-warning system is not needed during normal flight conditions. If a failure of the high incidence protection function occurs that is not shown to be extremely improbable,

stall warning must be provided in a conventional manner. Also, the flight characteristics at the angle of attack for maximum-lift coefficient ( $C_{L_{max}}$ ) must be suitable in the traditional sense.

These special conditions address this novel or unusual design feature on the Bombardier Model BD-500-1A10 and -1A11 airplanes. These special conditions, which include airplane performance requirements, establish a level of safety equivalent to the current regulations for reference stall speeds, stall warning, stall characteristics, and miscellaneous other minimum reference speeds.

These proposed special conditions for the Bombardier Model BD-500-1A10 and -1A11 airplanes present amendments to the appropriate regulations to accommodate the unique features of the high incidence protection function.

### **Applicability**

As discussed above, these special conditions are applicable to the Bombardier Model BD-500-1A10 and -1A11 airplanes. Should Bombardier apply at a later date for a change to the type certificate to include another model incorporating the same or similar novel or unusual design feature, the special conditions would apply to that model as well.

### **Conclusion**

This action affects only certain novel or unusual design features on one model of airplanes. It is not a rule of general applicability.

### **List of Subjects in 14 CFR Part 25**

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

## **The Special Conditions**

Accordingly, the Federal Aviation Administration (FAA) issues the following special conditions as part of the type certification basis for Bombardier Model BD-500-1A10 and -1A11 airplanes.

### **Flight Envelope Protection: High Incidence Protection System**

#### **Special Conditions Part I**

##### **Stall Protection and Scheduled Operating Speeds**

The following special conditions are in lieu of §§ 25.21(b), 25.103, 25.145(a), 25.145(b)(6), 25.201, 25.203, 25.207, and 25.1323(d).

#### **Foreword**

In the following paragraphs, “in icing conditions” means with the ice accretions (relative to the relevant flight phase) as defined in 14 CFR part 25, Amendment 121, appendix C.

#### **1. Definitions.**

These special conditions use terminology that does not appear in 14 CFR part 25:

- *High incidence protection system*: A system that operates directly and automatically on the airplane’s flying controls to limit the maximum angle of attack that can be attained to a value below that at which an aerodynamic stall would occur.
- *Alpha limit*: The maximum angle of attack at which the airplane stabilizes with the high incidence protection system operating, and the longitudinal control held on its aft stop.
- $V_{min}$ : The minimum steady flight speed in the airplane configuration under consideration with the high incidence protection system operating. See Part I, section 3 of these special conditions.

- $V_{min}1g$ :  $V_{min}$  corrected to 1g conditions. See Part I, section 3 of these special conditions. It is the minimum calibrated airspeed at which the airplane can develop a lift force normal to the flight path and equal to its weight when at an angle of attack not greater than that determined for  $V_{min}$ .

## **2. Capability and Reliability of the High Incidence Protection System**

The applicant must establish the capability and reliability of the high incidence protection system. The applicant may establish this capability and reliability by flight test, simulation, or analysis. The capability and reliability required are::

1. It must not be possible during pilot-induced maneuvers to encounter a stall, and handling characteristics must be acceptable, as required by Part I, section 5 of these special conditions.

2. The airplane must be protected against stalling due to the effects of wind-shears and gusts at low speeds as required by Part I, section 6 of these special conditions.

3. The ability of the high incidence protection system to accommodate any reduction in stalling incidence must be verified in icing conditions.

4. The high incidence protection system must be provided in each abnormal configuration of the high-lift devices that are likely to be used in flight following system failures.

5. The reliability of the system and the effects of failures must be acceptable in accordance with § 25.1309.

## **3. Minimum Steady Flight Speed and Reference Stall Speed**

In lieu of § 25.103, the following applies:



(a) The minimum steady flight speed,  $V_{\min}$ , is the final stabilized calibrated airspeed obtained when the airplane is decelerated until the longitudinal control is on its stop in such a way that the entry rate does not exceed 1 knot per second.

(b) The minimum steady flight speed,  $V_{\min}$ , must be determined in icing and non-icing conditions with:

- (1) The high incidence protection system operating normally;
- (2) Idle thrust and automatic thrust system (if applicable) inhibited;
- (3) All combinations of flap settings and landing gear position for which  $V_{\min}$  is required to be determined;
- (4) The weight used when reference stall speed,  $V_{SR}$ , is being used as a factor to determine compliance with a required performance standard;
- (5) The most unfavorable center of gravity allowable; and
- (6) The airplane trimmed for straight flight at a speed achievable by the automatic trim system.

(c) The 1-g minimum steady flight speed,  $V_{\min 1g}$ , is the minimum calibrated airspeed at which the airplane can develop a lift force (normal to the flight path) equal to its weight, while at an angle of attack not greater than that at which the minimum steady flight speed of subparagraph (a) was determined. It must be determined in icing and non-icing conditions.

(d) The reference stall speed,  $V_{SR}$ , is a calibrated airspeed defined by the applicant.  $V_{SR}$  may not be less than a 1g stall speed.  $V_{SR}$  must be determined in non-icing conditions and expressed as:

$$V_{SR} \geq \frac{V_{CL_{MAX}}}{\sqrt{n_{zw}}}$$

where—

$V_{CLmax}$  = Calibrated airspeed obtained when the load factor-corrected lift

coefficient ( $\frac{n_{zw}W}{qS}$ ) is first a maximum during the maneuver prescribed

in paragraph (e)(8) below.

$N_{zw}$  = Load factor normal to the flight path at  $V_{CLmax}$

$W$  = Airplane gross weight;

$S$  = Aerodynamic reference wing area; and

$q$  = Dynamic pressure.

(e)  $V_{CLmax}$  is determined in non-icing conditions with:

- (1) Engines idling, or, if that resultant thrust causes an appreciable decrease in stall speed, not more than zero thrust at the stall speed;
- (2) The airplane in other respects (such as flaps and landing gear) in the condition existing in the test or performance standard in which  $V_{SR}$  is being used;
- (3) The weight used when  $V_{SR}$  is being used as a factor to determine compliance with a required performance standard;
- (4) The center of gravity position that results in the highest value of reference stall speed;
- (5) The airplane trimmed for straight flight at a speed achievable by the automatic trim system, but not less than  $1.13 V_{SR}$  and not greater than  $1.3 V_{SR}$ ;
- (6) Reserved.
- (7) The high incidence protection system adjusted, at the option of the applicant, to allow higher incidence than is possible with the normal production system; and

- (8) Starting from the stabilized trim condition, apply the longitudinal control to decelerate the airplane so that the speed reduction does not exceed 1 knot per second.

#### **4. Stall Warning**

In lieu of § 25.207, the following apply:

##### **4.1 Normal Operation**

If the design meets all conditions of section 2 of these special conditions, then the airplane need not provide stall warning during normal operation. . The conditions of section 2 provide safety equivalent to § 25.207, “Stall warning,” so the provision of an additional, unique warning device for normal operations is not required.

##### **4.2 High Incidence Protection System Failure**

For any failure of the high incidence protection system that the applicant cannot show to be extremely improbable, and that result in the capability of the system no longer satisfying any part of section 2 of these special conditions, the design must provide stall warning that protects against encountering unacceptable stall characteristics and against encountering stall.

(a) This stall warning, with the flaps and landing gear in any normal position, must be clear and distinctive to the pilot and meet the requirements specified in paragraphs (d) and (e), below.

(b) The design must also provide this stall warning in each abnormal configuration of the high-lift devices that is likely to be used in flight following system failures.

(c) The design may furnish this stall warning either through the inherent aerodynamic qualities of the airplane or by a device that will give clearly distinguishable indications under all expected conditions of flight. However, a visual stall-warning device that requires the attention

of the crew within the flightdeck is not acceptable by itself. If a warning device is used, it must provide a warning in each of the airplane configurations prescribed in paragraph (a), above, and for the conditions prescribed in paragraphs (d) and (e), below.

(d) In non-icing conditions, stall warning must provide sufficient margin to prevent encountering unacceptable stall characteristics and encountering stall in the following conditions:

(1) In power-off straight deceleration not exceeding 1 knot per second to a speed 5 knots or 5 percent calibrated airspeed, whichever is greater, below the warning onset.

(2) In turning flight, stall deceleration at entry rates up to 3 knots per second when recovery is initiated not less than 1 second after the warning onset.

(e) In icing conditions, stall warning must provide sufficient margin to prevent encountering unacceptable characteristics and encountering stall, in power-off straight and turning flight decelerations not exceeding 1 knot per second, when the pilot starts a recovery maneuver not less than three seconds after the onset of stall warning.

(f) An airplane is considered stalled when the behavior of the airplane gives the pilot a clear and distinctive indication of an acceptable nature that the airplane is stalled. Acceptable indications of a stall, occurring either individually or in combination, are:

(1) A nose-down pitch that cannot be readily arrested;

(2) Buffeting, of a magnitude and severity that is a strong and effective deterrent to further speed reduction;

(3) The pitch control reaches the aft stop, and no further increase in pitch attitude occurs when the control is held full aft for a short time before recovery is initiated.

(g) An airplane exhibits unacceptable characteristics during straight or turning flight decelerations if it is not always possible to produce and to correct roll and yaw by unreversed use of aileron and rudder controls, or abnormal nose-up pitching occurs.

## **5. Handling Characteristics at High Incidence**

In lieu of §§ 25.201 and 25.203, the following apply:

### **5.1 High Incidence Handling Demonstration**

In lieu of § 25.201:

(a) Maneuvers to the limit of the longitudinal control, in the nose-up pitch, must be demonstrated in straight flight and in 30-degree banked turns with:

(1) The high incidence protection system operating normally;

(2) Initial power conditions of:

i. Power off; and

ii. The power necessary to maintain level flight at  $1.5 V_{SR1}$ , where  $V_{SR1}$  is

the reference stall speed with flaps in approach position, the landing gear retracted, and maximum landing weight.

(3) None.

(4) Flaps, landing gear, and deceleration devices in any likely combination of positions;

(5) Representative weights within the range for which certification is requested; and

(6) The airplane trimmed for straight flight at a speed achievable by the automatic trim system.

(b) The following procedures must be used to show compliance in non-icing and icing conditions:

(1) Starting at a speed sufficiently above the minimum steady flight speed to ensure that a steady rate of speed reduction can be established, apply the longitudinal control so that the speed reduction does not exceed 1 knot per second until the control reaches the stop;

(2) The longitudinal control must be maintained at the stop until the airplane has reached a stabilized flight condition and must then be recovered by normal recovery techniques;

(3) Maneuvers with increased deceleration rates:

(i) In non-icing conditions, the requirements must also be met with increased rates of entry to the incidence limit, up to the maximum rate achievable; and

(ii) In icing conditions, with the anti-ice system working normally, the requirements must also be met with increased rates of entry to the incidence limit, up to 3 knots per second.

(4) Maneuver with ice accretion prior to operation of the normal anti-ice system.

With the ice accretion prior to operation of the normal anti-ice system, the requirements must also be met in deceleration at 1 knot per second up to full back stick.

## **5.2 Characteristics in High Incidence Maneuvers**

In lieu of § 25.203:

In icing and non-icing conditions:

(a) Throughout maneuvers with a rate of deceleration of not more than 1 knot per second, both in straight flight and in 30-degree banked turns, the airplane's characteristics must be as follows:

- (1) There must not be any abnormal nose-up pitching.
- (2) There must not be any uncommanded nose-down pitching, which would be indicative of stall. However, reasonable attitude changes associated with stabilizing the incidence at Alpha limit as the longitudinal control reaches the stop would be acceptable.
- (3) There must not be any uncommanded lateral or directional motion, and the pilot must retain good lateral and directional control, by conventional use of the controls, throughout the maneuver.
- (4) The airplane must not exhibit buffeting of a magnitude and severity that would act as a deterrent from completing the maneuver specified in paragraph 5.1(a).

(b) In maneuvers with increased rates of deceleration, some degradation of characteristics is acceptable, associated with a transient excursion beyond the stabilized Alpha limit. However, the airplane must not exhibit dangerous characteristics or characteristics that would deter the pilot from holding the longitudinal control on the stop for a period of time appropriate to the maneuver.

(c) It must always be possible to reduce incidence by conventional use of the controls.

(d) The rate at which the airplane can be maneuvered from trim speeds associated with scheduled operating speeds such as  $V_2$  and  $V_{REF}$ , up to Alpha limit, must not be unduly damped or be significantly slower than can be achieved on conventionally controlled transport airplanes.

### 5.3 Characteristics up to Maximum Lift Angle of Attack

In lieu of § 25.201:

(a) In non-icing conditions:

Maneuvers with a rate of deceleration of not more than 1 knot per second, up to the angle of attack at which  $V_{CLmax}$  was obtained, as defined in section 3, “Minimum Steady Flight Speed and Reference Stall Speed,” must be demonstrated in straight flight and in 30-degree banked turns in the following configurations:

- (1) The high incidence protection deactivated or adjusted, at the option of the applicant, to allow higher incidence than is possible with the normal production system;
- (2) Automatic thrust-increase system inhibited (if applicable);
- (3) Engines idling;
- (4) Flaps and landing gear in any likely combination of positions; and
- (5) The airplane trimmed for straight flight at a speed achievable by the automatic trim system.

(b) In icing conditions:

Maneuvers with a rate of deceleration of not more than 1 knot per second, up to the maximum angle of attack reached during maneuvers from paragraph 5.1(b)(3)(ii), must be demonstrated in straight flight with:

- (1) The high incidence protection deactivated or adjusted, at the option of the applicant, to allow higher incidence than is possible with the normal production system;
- (2) Automatic thrust-increase system inhibited (if applicable);



- (3) Engines idling;
- (4) Flaps and landing gear in any likely combination of positions; and
- (5) The airplane trimmed for straight flight at a speed achievable by the automatic trim system.

(c) During the maneuvers used to show compliance with paragraphs (a) and (b), above, the airplane must not exhibit dangerous characteristics, and it must always be possible to reduce the angle of attack by conventional use of the controls. The pilot must retain good lateral and directional control, by conventional use of the controls, throughout the maneuver.

## **6. Atmospheric Disturbances**

Operation of the high incidence protection system must not adversely affect airplane control during expected levels of atmospheric disturbances, nor impede the application of recovery procedures in case of wind-shear. This must be demonstrated in non-icing and icing conditions.

## **7. Proof of Compliance**

In lieu of § 25.21(b), “[Reserved],” the design must meet the following requirement:

(b) The flying qualities must be evaluated at the most unfavorable center-of-gravity position.

## **8. Sections 25.145(a), 25.145(b)(6), and 25.1323(d)**

The design must meet the following modified requirements:

- For § 25.145(a), add “ $V_{min}$ ” in lieu of “stall identification.”
- For § 25.145(b)(6), add “ $V_{min}$ ” in lieu of “ $V_{SW}$ .”
- For § 25.1323(d), add “From  $1.23 V_{SR}$  to  $V_{min}$ ...,” in lieu of “ $1.23 V_{SR}$  to stall warning speed...,” and, “...speeds below  $V_{min}$ ...” in lieu of “...speeds below stall warning...”

## **Special Conditions Part II**

### **Credit for Robust Envelope Protection in Icing Conditions**

The following special conditions are in lieu of the specified paragraphs of §§ 25.103, 25.105, 25.107, 25.121, 25.123, 25.125, 25.143, and 25.207.

1. In lieu of § 25.103, define the stall speed as provided in Part I of these special conditions.

2. In lieu of § 25.105(a)(2)(i), the following applies:

- (i) The  $V_2$  speed scheduled in non-icing conditions does not provide the maneuvering capability specified in § 25.143(h) for the takeoff configuration, or apply 25.105(a)(2)(ii) unchanged.

3. In lieu of § 25.107(c) and (g), the following apply, with additional sections (c') and (g'):

(c) In non-icing conditions,  $V_2$ , in terms of calibrated airspeed, must be selected by the applicant to provide at least the gradient of climb required by § 25.121(b), but may not be less than—

- (1)  $V_{2MIN}$ ;
- (2)  $V_R$  plus the speed increment attained (in accordance with § 25.111(c)(2)) before reaching a height of 35 feet above the takeoff surface; and
- (3) A speed that provides the maneuvering capability specified in § 25.143(h).

(c') In icing conditions with the “takeoff ice” accretion defined in part 25, appendix C,  $V_2$  may not be less than—

- (1) The  $V_2$  speed determined in non-icing conditions; and
- (2) A speed that provides the maneuvering capability specified in § 25.143(h).

(g) In non-icing conditions,  $V_{FTO}$ , in terms of calibrated airspeed, must be selected by the applicant to provide at least the gradient of climb required by § 25.121(c), but may not be less than—

(1)  $1.18 V_{SR}$ ; and

(2) A speed that provides the maneuvering capability specified in § 25.143(h).

(g') In icing conditions with the “final takeoff ice” accretion defined in part 25, appendix C,  $V_{FTO}$  may not be less than—

(1) The  $V_{FTO}$  speed determined in non-icing conditions.

(2) A speed that provides the maneuvering capability specified in § 25.143(h).

4. In lieu of §§ 25.121(b)(2)(ii)(A), 25.121(c)(2)(ii)(A), and 25.121(d)(2)(ii), the following apply:

In lieu of § 25.121(b)(2)(ii)(A):

(A) The  $V_2$  speed scheduled in non-icing conditions does not provide the maneuvering capability specified in § 25.143(h) for the takeoff configuration; or

In lieu of § 25.121(c)(2)(ii)(A):

(A) The  $V_{FTO}$  speed scheduled in non-icing conditions does not provide the maneuvering capability specified in § 25.143(h) for the en-route configuration; or

In lieu of § 25.121(d)(2)(ii):

(d)(2) The requirements of subparagraph (d)(1) of this paragraph must be met:

(ii) In icing conditions with the approach ice accretion defined in 14 CFR part 25, appendix C, in a configuration corresponding to the normal all-engines-operating procedure in which  $V_{min}1g$  for this configuration does not exceed 110 percent of the  $V_{min}1g$  for the related all-engines-operating

landing configuration in icing, with a climb speed established with normal landing procedures, but not more than  $1.4 V_{SR}$  ( $V_{SR}$  determined in non-icing conditions).

5. In lieu of § 25.123(b)(2)(i), the following applies:

(i) The minimum en-route speed scheduled in non-icing conditions does not provide the maneuvering capability specified in § 25.143(h) for the en-route configuration, or

6. In lieu of § 25.125(b)(2)(ii)(B) and § 25.125(b)(2)(ii)(C), the following applies:

(B) A speed that provides the maneuvering capability specified in § 25.143(h) with the approach ice accretion defined in 14 CFR part 25, appendix C.

7. In lieu of § 25.143(j)(2)(i), the following applies:

(i) The airplane is controllable in a pull-up maneuver up to 1.5 g load factor or lower if limited by angle-of-attack protection.

8. In lieu of § 25.207, “Stall warning,” to read as the requirements defined in these special conditions Part I, section 4.

Issued in Renton, Washington, on September 1, 2015.

Michael Kaszycki

Acting Manager, Transport Airplane Directorate  
Aircraft Certification Service

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